

Claims

- [c1] A method of controlling a vehicle comprising:
determining a straight position of the trailer using a trailer sensor during forward motion of the vehicle; and
controlling the vehicle to maintain the trailer in the straight position.
- [c2] A method as recited in claim 1 wherein the trailer sensor comprises a hitch sensor.
- [c3] A method as recited in claim 1 wherein the trailer sensor comprises a reverse aid sensor.
- [c4] A method as recited in claim 3 wherein the trailer sensor further comprises a locating plate coupled to the trailer tongue.
- [c5] A method as recited in claim 4 wherein the locating plate comprises a locating hole therethrough, said locating hole aligned with said tongue.
- [c6] A method as recited in claim 1 wherein the trailer sensor comprises a camera.
- [c7] A method as recited in claim 1 wherein controlling comprises performing controlling during straight reversing

direction.

- [c8] A method as recited in claim 7 wherein straight reversing is determined from a reverse signal and a steering wheel angle signal.
- [c9] A method as recited in claim 1 further comprising generating a reverse direction signal corresponding to a reverse direction of the vehicle.
- [c10] A method as recited in claim 9 wherein generating a reverse direction signal comprises generating a reverse direction from a shift lever.
- [c11] A method as recited in claim 9 wherein generating a reverse direction signal comprises generating a reverse direction from a push button.
- [c12] A method as recited in claim 9 wherein generating a reverse direction signal comprises generating a reverse direction from a transmission controller.
- [c13] A method as recited in claim 9 wherein generating a reverse direction signal comprises generating a reverse direction from a wheel speed sensor.
- [c14] A method as recited in claim 9 further comprising selecting a trailer direction from a manual input.

- [c15] A method as recited in claim 14 wherein the manual input comprises a turn-signal lever.
- [c16] A method as recited in claim 1 wherein said controlling comprises generating brake-steer.
- [c17] A system for controlling an automotive vehicle having a trailer comprising:
a secondary steering actuator generating a signal indicative of a desired trailer turn direction;
reverse signal means generating a reverse signal corresponding to a reverse direction of the vehicle; a trailer position sensor generating a trailer position signal;
a controller coupled to the secondary steering actuator, the reverse signal means and the trailer position sensor, said controller programmed to brake-steer the vehicle to maintain the vehicle in the desired trailer turn direction.
- [c18] A system as recited in claim 17 wherein the secondary steering actuator comprises a turn signal actuator.
- [c19] A system as recited in claim 17 wherein the secondary steering actuator comprises a secondary stalk.
- [c20] A system as recited in claim 17 wherein the secondary steering actuator comprises a push button.
- [c21] A system as recited in claim 17 further comprising a

trailer brake system, said controller programmed to brake-steer the trailer brake system and vehicle.

[c22] A system as recited in claim 21 further comprising a vehicle brake system, said controller programmed to brake-steer the vehicle brake system.

[c23] A system as recited in claim 17 further comprising a vehicle brake system, said controller programmed to brake-steer the vehicle brake system.

[c24] A system as recited in claim 17 wherein the trailer position sensor comprises determining the presence of a trailer with a hitch sensor.

[c25] A method as recited in claim 17 wherein determining the presence of a trailer comprises determining the presence of a trailer with a reverse aid sensor.

[c26] A method as recited in claim 17 wherein determining the presence of a trailer comprises determining the presence of a trailer with an ultrasonic sensor.

[c27] A method as recited in claim 17 wherein determining the presence of a trailer comprises determining the presence of a trailer with a camera.

[c28] A system as recited in claim 17 wherein said means comprises a shift lever.

- [c29] A system as recited in claim 17 wherein said means comprises a push button.
- [c30] A system as recited in claim 17 wherein said means comprises a transmission controller.
- [c31] A system as recited in claim 17 wherein said means comprises a wheel speed sensor.
- [c32] A method of aligning a trailer and a vehicle comprising:
 - determining a position of the trailer using a trailer sensor positioned on the vehicle and a locating plate having a locating hole located on the trailer;
 - determining the position of the locating hole relative to the vehicle when the vehicle is reversing toward the trailer; and
 - displaying an indication of the position of the locating hole relative to the vehicle.
- [c33] A method as recited in claim 32 wherein determining a position comprises determining a position relative to a hitch of the vehicle.
- [c34] A method as recited in claim 32 wherein the trailer sensor comprises a hitch sensor.
- [c35] A method as recited in claim 32 wherein the trailer sensor comprises a reverse aid sensor.

